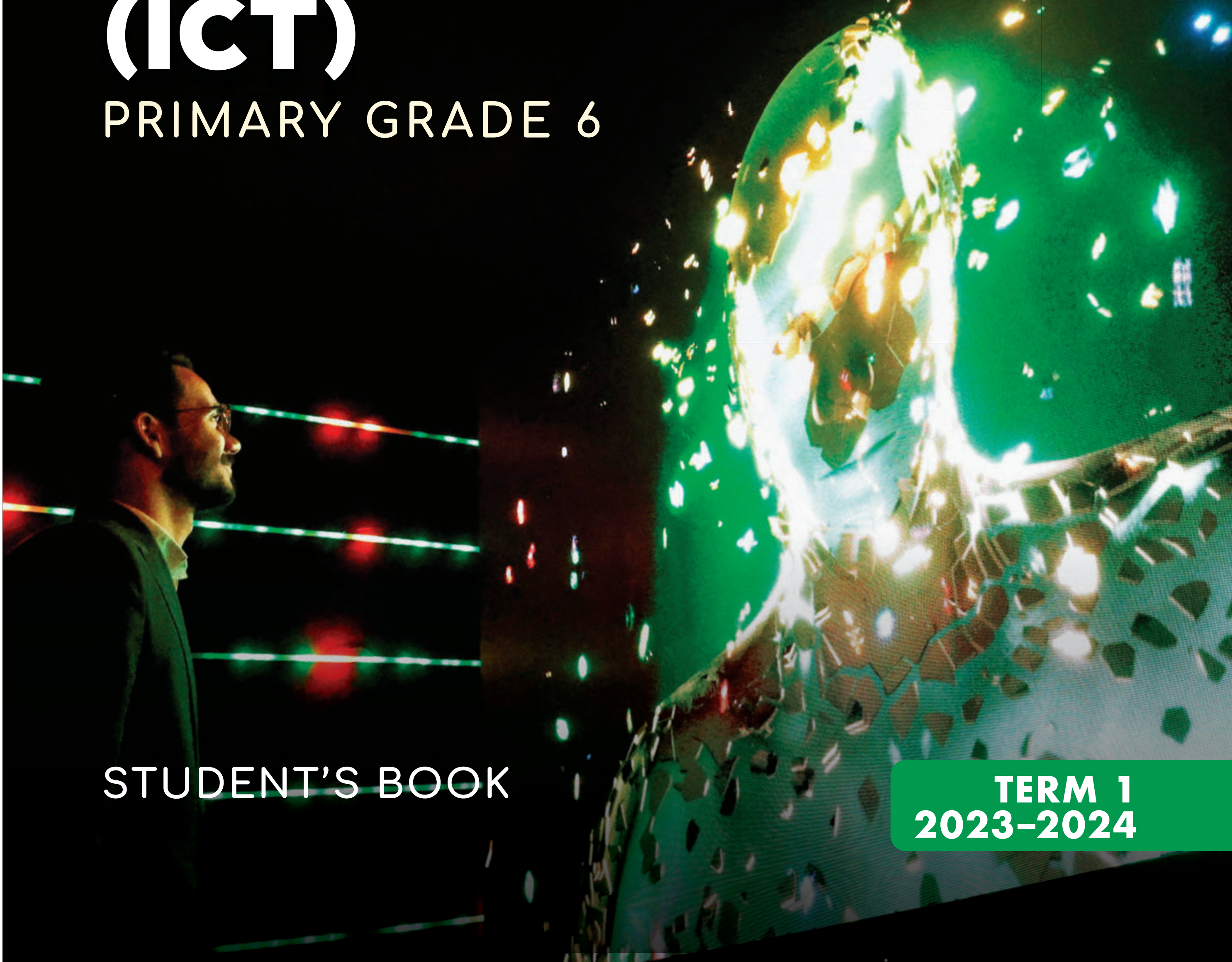
INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

PRIMARY GRADE 6



STUDENT'S BOOK

TERM 1
2023–2024

Introduction

أطلقت وزارة التربية والتعليم والتعليم الفني رؤية مصر الإصلاحية لتطوير التعليم، وكانت عملية تطوير المناهج هي الركيزة الأساسية لهذه الرؤية؛ إذ انطلقت إشارة البدء في تنفيذها من مرحلة رياض الأطفال بصفَيْها الأول والثاني ٢٠١٨ ومستمرة على التوالي حتى نهاية المرحلة الثانوية.

وقد استهدفت تلك الرؤية إجراء تحوّلات كبرى في عمليات التعليم والتعلم حيث الانتقال من اكتساب المعرفة إلى إنتاجها، ومن تعلم المهارات إلى توظيفها في مواقف التعلم وتعميمها في حياة المتعلم خارج الصفوف، كما تضمنت مناهجنا القِيَم البانية لمجتمعنا والتي تعدّ سياجًا يحمي وطننا، كما استهدفت رؤية مصر الإصلاحية لتطوير المناهج مراعاة مواصفات خرّيج التعليم قبل الجامعي، وما تواجهه مصر من تحديات محليًّا وإقليميًّا وعالميًّا؛ إذ استهدفت المناهج المطوَّرة بناء مُواطن قادر على التواصل الحضاري واحترام التنوّع وبناء حوار إيجابي مع الآخر، فضلًا عن اكتساب مهارات المواطنة الرقْمية.

وفي هذا الصدد تتقدم وزارة التربية والتعليم والتعليم الفني بكل الشكر والتقدير للإدارة المركزية لتطوير المناهج والمواد التعليمية، وتخصّ كذلك بالشكر مؤسسة ناشيونال جيوجرافيك ليرنينج وشركة أبو الهول للنشر لمشاركتها الفاعلة في إعداد محتوى هذا الكتاب، كما تتقدم بالشكر لجميع خبراء الوزارة الذين أسهموا في إثراء هذا العمل.

تفخر وزارة التربية والتعليم والتعليم الفني بأن تقدم هذه السلسلة التعليمية الجديدة، ولقد كان هذا العمل نتاجًا للكثير من الدراسات والمقارنات والتفكير العميق والتعاون مع كثير من خبراء التربية في المؤسسات الوطنية والعالمية؛ لكي نصوغ رؤيتنا في إطار قومي إبداعي، ومواد تعليمية ورقية ورقْمية فعّالة.

إن تغيير نظامنا التعليمي لم يكن ممكنًا دون الإيمان العميق للقيادة السياسية المصرية بضرورة التغيير؛ فالإصلاح الشامل للتعليم في مصر هو جزء أصيل من رؤية السيد الرئيس عبد الفتاح السيسي لإعادة بناء المواطن المصري، ولقد تمّ تفعيل هذه الرؤية بالتنسيق مع مؤسسات الدولة ذات الصلة منها وزارة التعليم العالي والبحث العلمي، ووزارة الثقافة، ووزارة الشباب والرياضة.

إنّ نظام تعليم مصر الجديد هو جزء من مجهود وطني كبير ومتواصل؛ للارتقاء بمصر إلى مصاف الدول المتقدّمة لضمان مستقبل عظيم لجميع مواطنيها.

كلمة السيد وزير التربية والتعليم
والتعليم الفني

أبنائي الطلاب .. زملائي المعلمين

بكل فخر واعتزاز يسعدني أن أشارككم تلك المرحلة الحاسمة في ملحمة التنمية الشاملة المستدامة، ويشارك فيها جميع أطياف الشعب المصري العظيم، وهذا يستدعي أن يكون لدينا منظومة تعليمية قوية تنتج جيلًا قادرًا على مواجهة التحديات الكبرى التي يشهدها العالم في الوقت الحاضر، وأن تكون له الريادة في امتلاك مهارات المستقبل؛ ولهذا فإن الدولة المصرية تحرص على ترسيخ العلم من خلال بناء منظومة تعليمية على قدر عال من الجودة، تمكن أبناءها من مهارات العصر وتجعلهم قادرين على خوض المسارات التنافسية الإقليمية والعالمية في وقت يشهد العالم فيه ثورات صناعية متعاقبة.

وهذا يحتم علينا أن يكرس نظامنا التعليمي التأكيد على المهارات والفهم العميق وإنتاج المعرفة، وذلك من خلال بناء منظومة مناهج حديثة تتواكب مع التغيرات الحادثة على كافة الأصعدة، وتؤكد على التربية من أجل تنمية المهارات والقيم وعلى تكامل المعارف، وتعدد مصادر التعلم، ودمج التكنولوجيا لإثراء العملية التعليمية وتحسين نواتجها، وأن تتضمن أهم القضايا المعاصرة على كافة المستويات.

وعلينا أن نتكاتف جميعًا لمواصلة رحلة التطوير الدائم في ركائز التعليم، وتوفير أساليب الحداثة في منظومتنا التعليمية، والاهتمام بعناصرها، ودعمها بكل ما يسهم في ريادتها، للوصول إلى نظام تعليمي متميز.

تمنياتي لأبنائي الطلاب ولزملائي المعلمين بدوام التوفيق.

الأستاذ الدكتور رضا حجازي
وزير التربية والتعليم والتعليم الفني

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Scope and sequence



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Essential Question: How can we use ICT tools to help keep up with current developments?

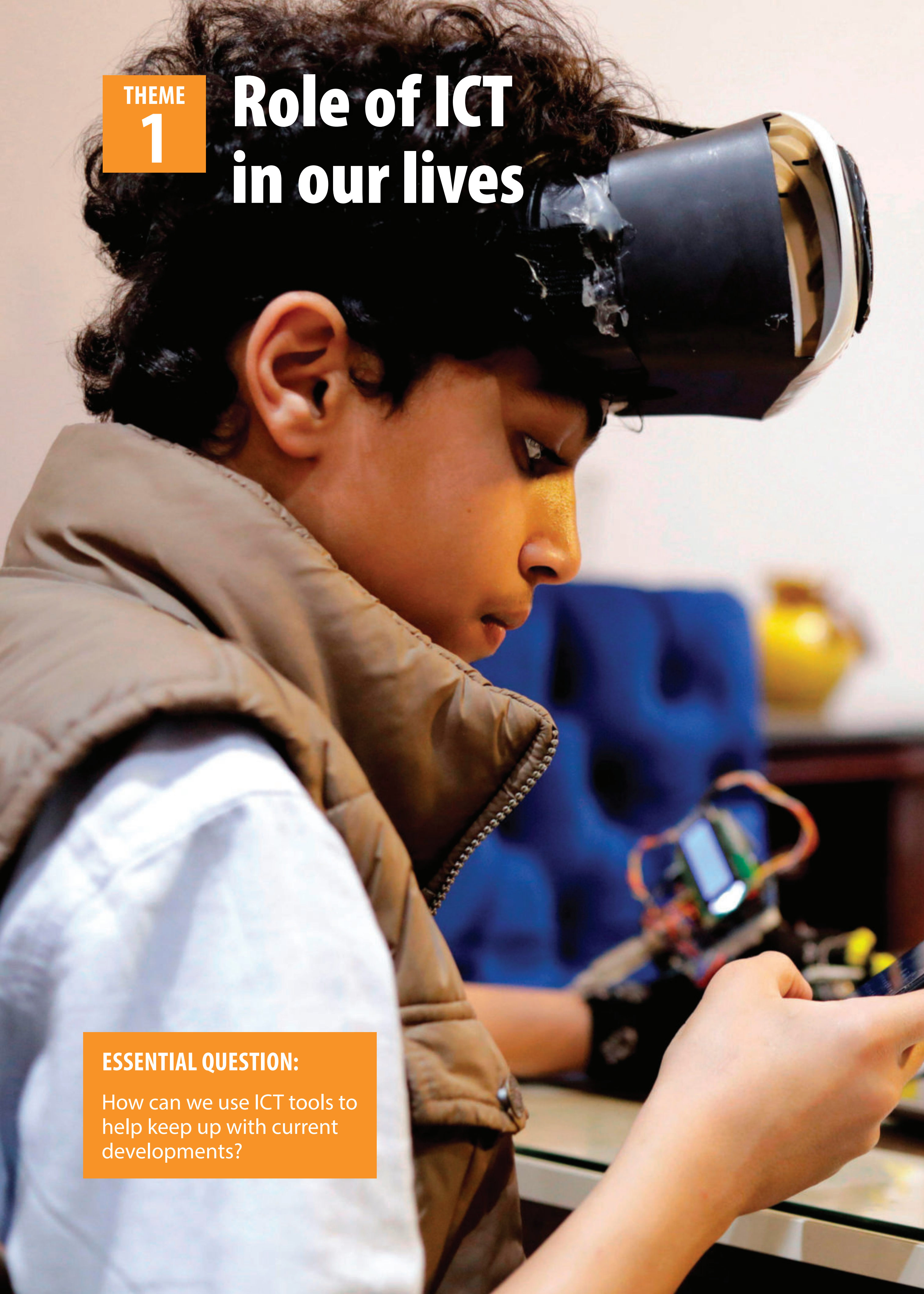
LESSON	TOPICS	SKILLS INTEGRATION		
		Life skills	Values	Issues and challenges
LESSON 1 Explorer in Action	• How computer software can be used • Plan a website	**Learning to know:** problem solving; creativity	**Work values:** perseverance **Personal values:** independence	**Globalization issues:** entrepreneurship **Discrimination issues:** discrimination against people with special needs
LESSON 2 Computer network devices	• The different elements used in a computer network • How computers and digital devices connect	**Learning to know:** problem solving **Learning to be:** communication	**Scientific values:** objectivity	**Globalization issues:** technological awareness
LESSON 3 Technology and artificial intelligence (AI)	• What virtual reality, augmented reality, and artificial intelligence are • How technologies can improve people's lives	**Learning to know:** creativity; problem solving	**Scientific values:** objectivity	**Globalization issues:** entrepreneurship
LESSON 4 Evaluating cutting-edge technology	• What assistive technology is • How cutting-edge technology can be used in society	**Learning to know:** problem solving **Learning to do:** co-operation	**Personal values:** independence **Work values:** perseverance	**Citizenship issues:** awareness of rights and duties **Discrimination issues:** discrimination against people with special needs **Globalization issues:** technological awareness
LESSON 5 Digital research skills	• Using digital search tools • Types of digital search tools	**Learning to know:** problem solving **Learning to be:** sharing	**Work values:** perseverance; co-operation	**Discrimination issues:** discrimination against people with special needs **Globalization issues:** technological awareness
LESSON 6 Mobile devices	• Features of mobile devices • How smartphones can help people	**Learning to know:** problem solving	**Personal values:** independence	**Citizenship issues:** awareness of rights and duties **Globalization issues:** civilizational communication
LESSON 7 Operating systems	• Types of mobile operating systems • What HTML is	**Learning to know:** problem solving **Learning to do:** co-operation	**Work values:** perseverance	**Globalization issues:** technological awareness
LESSON 8 Website design	• What HTML tags are • Using HTML on a webpage	**Learning to know:** creativity; problem solving	**Personal values:** independence **Work values:** persistence	**Globalization issues:** technological awareness; entrepreneurship



THEME 2 Digital safety and security precautions

Essential Question: How can we use ICT tools safely?

LESSON	TOPICS	SKILLS INTEGRATION		
		Life skills	Values	Issues and challenges
LESSON 1 Explorer in Action	• How Remote Sensing can be used • Design an application	**Learning to know:** problem solving **Learning to do:** decision making	**Scientific values:** objectivity **Work values:** perseverance	**Globalization issues:** technological awareness; digital citizenship
LESSON 2 How to deal with electronic games	• The dangers of electronic games • The impact of electronic games on my health	**Learning to know:** problem solving **Learning to live:** self-management	**Personal values:** independence	**Citizenship issues:** awareness of rights and duties **Health and population issues:** preventive health
LESSON 3 Protecting yourself from digital theft	• Ways to protect your devices • Why companies need to protect their data	**Learning to know:** problem solving **Learning to live:** self-management	**Scientific values:** objectivity **Personal values:** independence **Work values:** co-operation	**Globalization issues:** technological awareness
LESSON 4 Cyber security	• How to be safe online • Types of cyber security threats	**Learning to live:** self-management **Learning to do:** decision making	**Personal values:** independence **Work values:** perseverance	**Globalization issues:** technological awareness; digital citizenship
LESSON 5 Copyright and electronic financial trading	• What copyright is • What electronic financial trading is	**Learning to live:** self-management	**Personal values:** independence **Work values:** co-operation	**Globalization issues:** technological awareness; digital citizenship
LESSON 6 Cloud storage of files	• What cloud computing is • Storing files on cloud	**Learning to do:** decision making	**Personal values:** independence; participation	**Globalization issues:** technological awareness
LESSON 7 Cloud computing applications	• Examples of cloud computing applications • The features of different cloud computing applications	**Learning to live:** self-management **Learning to do:** decision making	**Personal values:** independence **Work values:** collaboration	**Globalization issues:** technological awareness

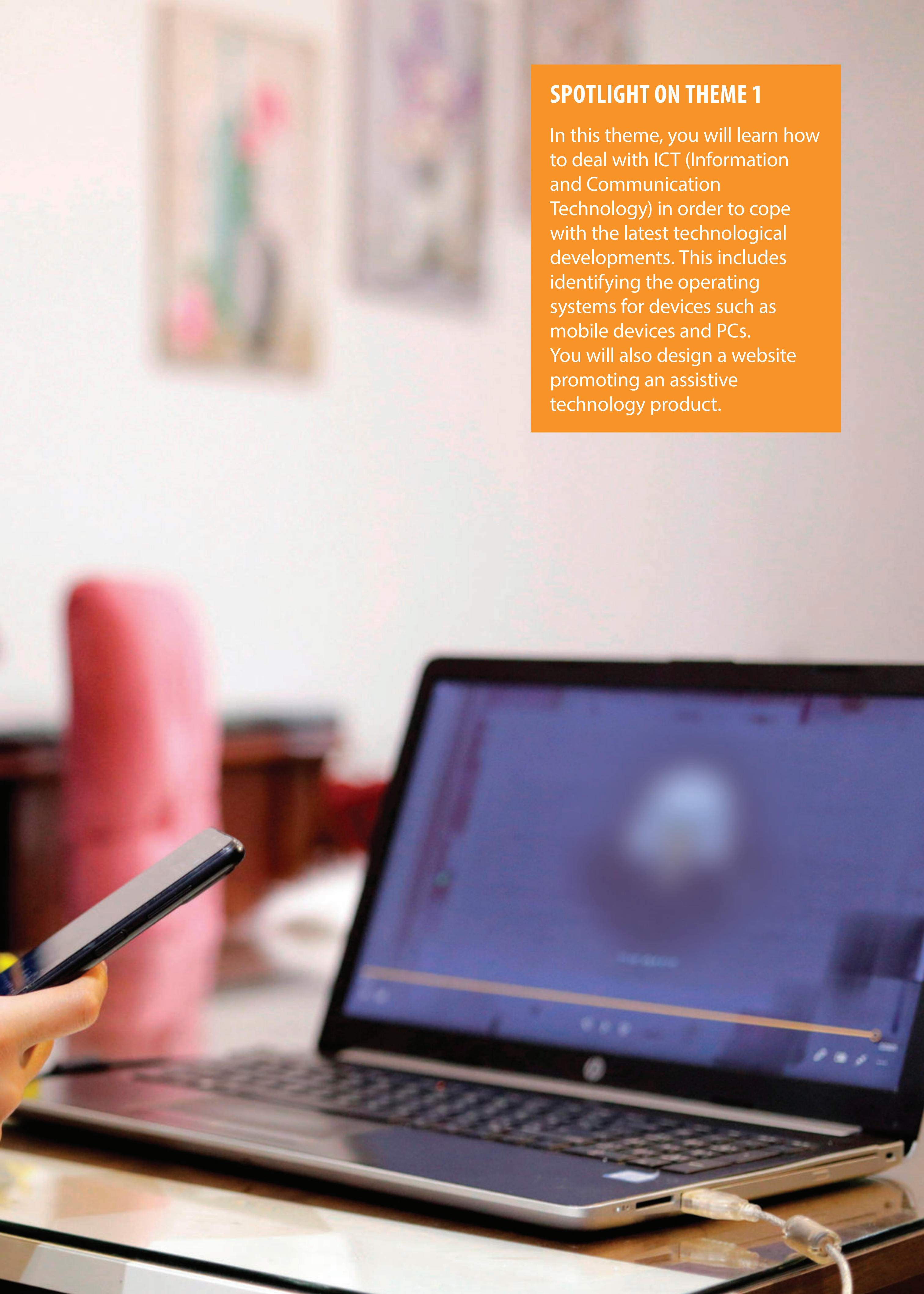


THEME 1

Role of ICT in our lives

ESSENTIAL QUESTION:

How can we use ICT tools to help keep up with current developments?



SPOTLIGHT ON THEME 1

In this theme, you will learn how to deal with ICT (Information and Communication Technology) in order to cope with the latest technological developments. This includes identifying the operating systems for devices such as mobile devices and PCs.
You will also design a website promoting an assistive technology product.

LESSON 1 EXPLORER IN ACTION

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Identify how ICT tools can help make my school more effective in helping others.	☐ Very well ☐ OK ☐ Need more work
• Find websites that provide services for people of determination.	☐ Very well ☐ OK ☐ Need more work
• Describe the role of ICT in helping others.	☐ Very well ☐ OK ☐ Need more work

Engage

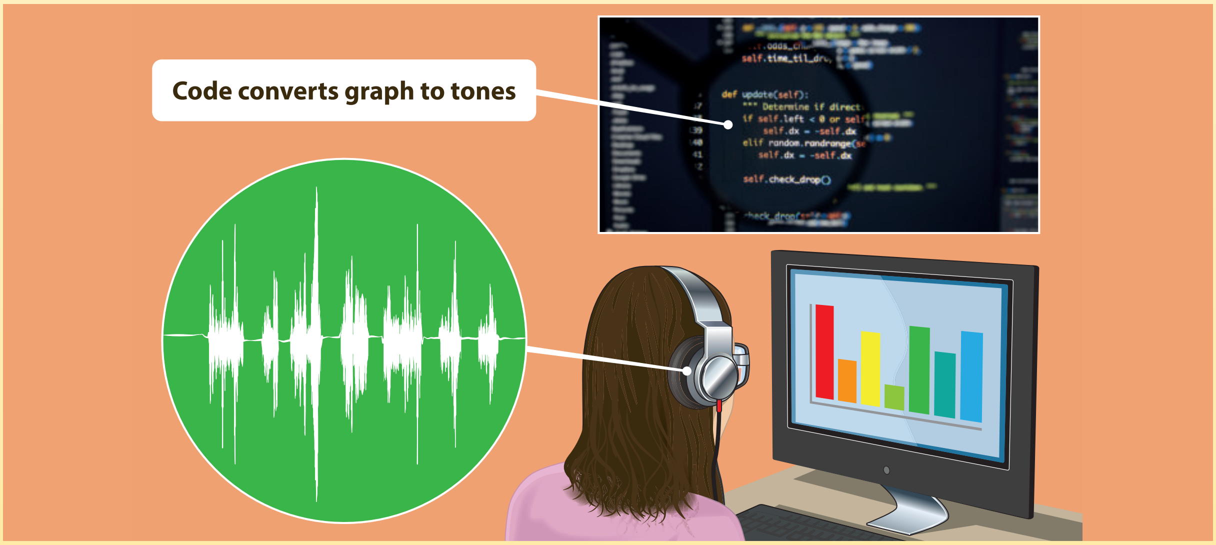
What is the benefit of using ICT tools? What can you do to help others to use them?

Learn

Mr. Kartik Sawhney is a National Geographic Explorer and a computer expert who uses technology to help people of determination. His studies focused on artificial intelligence and human-computer interaction.

Mr. Sawhney creates applications that provide access to visual content to the blind and visually impaired. His app converts graphs into audio frequencies, allowing the listener to hear the difference in information in the graph.

There are over one billion people of determination worldwide. In order for Mr. Sawhney to be able to help them, he co-founded I-Stem (istemai.com), a platform that provides software that changes digital texts into a format that can be easily used by the blind and visually impaired. A person who can't read a text might upload that text to the I-Stem website. The software converts the file into a Word document. A few minutes later, the person receives the converted document and listens to the text using a screen reader, which automatically reads text aloud.



The I-Stem platform also includes mentorship and employment opportunities for people of determination. This is achieved by working with governments, technical universities, and corporations. Supported by UNICEF, Microsoft, and the National Geographic Society among other partner organizations, the initiative makes the services and venues of the organizations more accessible. People of determination can get help from volunteer mentors with writing resumes, preparing for job interviews, and getting answers to career-related questions.



Egypt supports people of determination in many settings. To assist the visually impaired, the Taha Hussein Library in the New Bibliotheca Alexandrina has scanners with special software that converts printed text into audio. Scholarships and special opportunities are offered to gifted individuals, such as "The Miracle Child" Rania Saleh who is a talented computer programmer with Down Syndrome. In 2022, Egypt launched several initiatives to empower Egyptian people of determination. They guide organizations to integrate employees of determination in the workforce and create job opportunities. In addition, the Ministry of Manpower is developing programs that educate and train people of determination for the job market.

Video

Watch the video about Mr. Kartik Sawhney. What problems do his ICT tools solve?

Explore

Humans program computers so that computers can help other humans. How can technology help students and employees do their jobs better?

Review

1. Mr. Kartik Sawhney uses computer software extensively in his work. Think of three professions that use information technology and communications technology to assist humans in performing their job tasks..
2. How can ICT tools be used to make your school more effective?

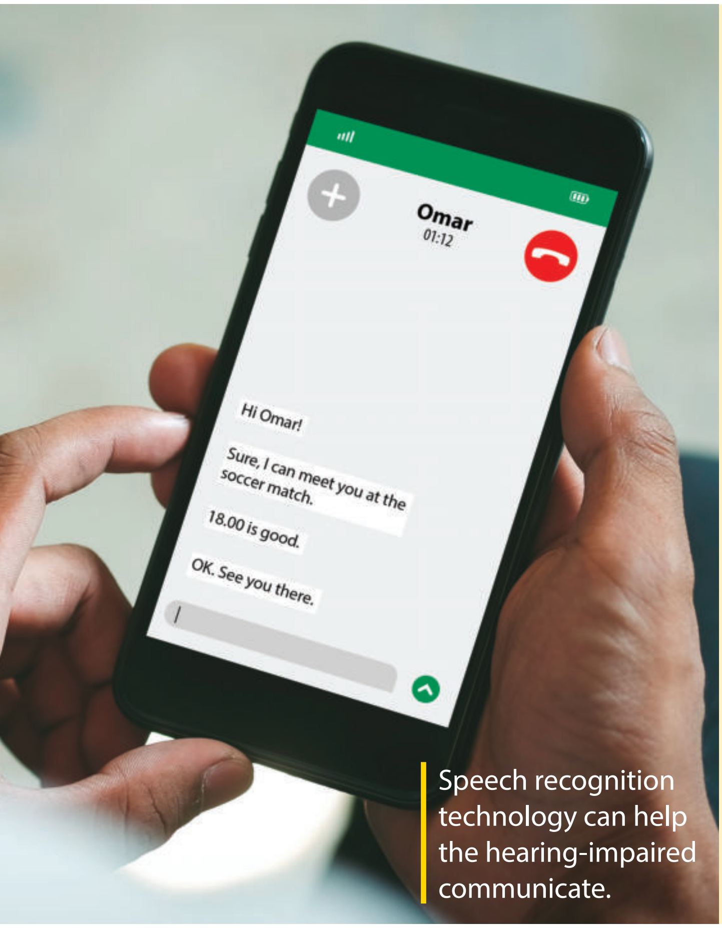
Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing **LESSON 1** **EXPLORER IN ACTION**

Comprehension

1 Read, think and answer



Speech recognition technology can help the hearing-impaired communicate.

Using a mobile phone can be difficult for people with a hearing impairment. However, there are apps that use speech-to-text technology to make communication by mobile phone easier. Usually during calls, the hearing-impaired person talks whereas the other person only listens. Now there are apps that use voice recognition technology to change speech to text in real-time. The text appears while the person is talking. If the hearing-impaired person has speech problems, he or she can type instead. The text is delivered to the other person as realistic speech. One such app is called Rogervoice. Hearing-impaired people can download and install the app on a smart phone, but the people who receive the calls don't need to install it, nor do they need to have a smart phone. Rogervoice has been downloaded by over 50,000 people worldwide.

1. In your opinion, why does this kind of app have a strong social impact?
2. In your opinion, how can this kind of app benefit people who are not hearing-impaired?

Research

2 Search and answer

Use the internet to research websites and apps that help people of determination. Who can they benefit? How can the website or the app help them in their lives?

1. accessnow.com ____________________
2. bemyeyes.com ____________________

Think and answer about me

3 Think and answer

Think about the websites and apps you researched in exercise 2. Then answer the questions.

1. Which one would be the most useful to you? How would you use it?

____

____

2. Which one is the least useful to you?

____

____

3. In your opinion, why is it important to use ICT tools to help others?

____

____

Creative planning

4 Think and present

You have decided to create an app that can help people of determination in your school. Think about the following:

- Who would your app help?
- What does your app help them do?
- What special feature makes your app unique?
- Would your app be free to download? If so, what additional feature would you add at an extra cost?
- How would you promote your app?

Use a PowerPoint presentation or create a booklet or advertisement poster to show your app to the class.

LESSON 2 COMPUTER NETWORK DEVICES

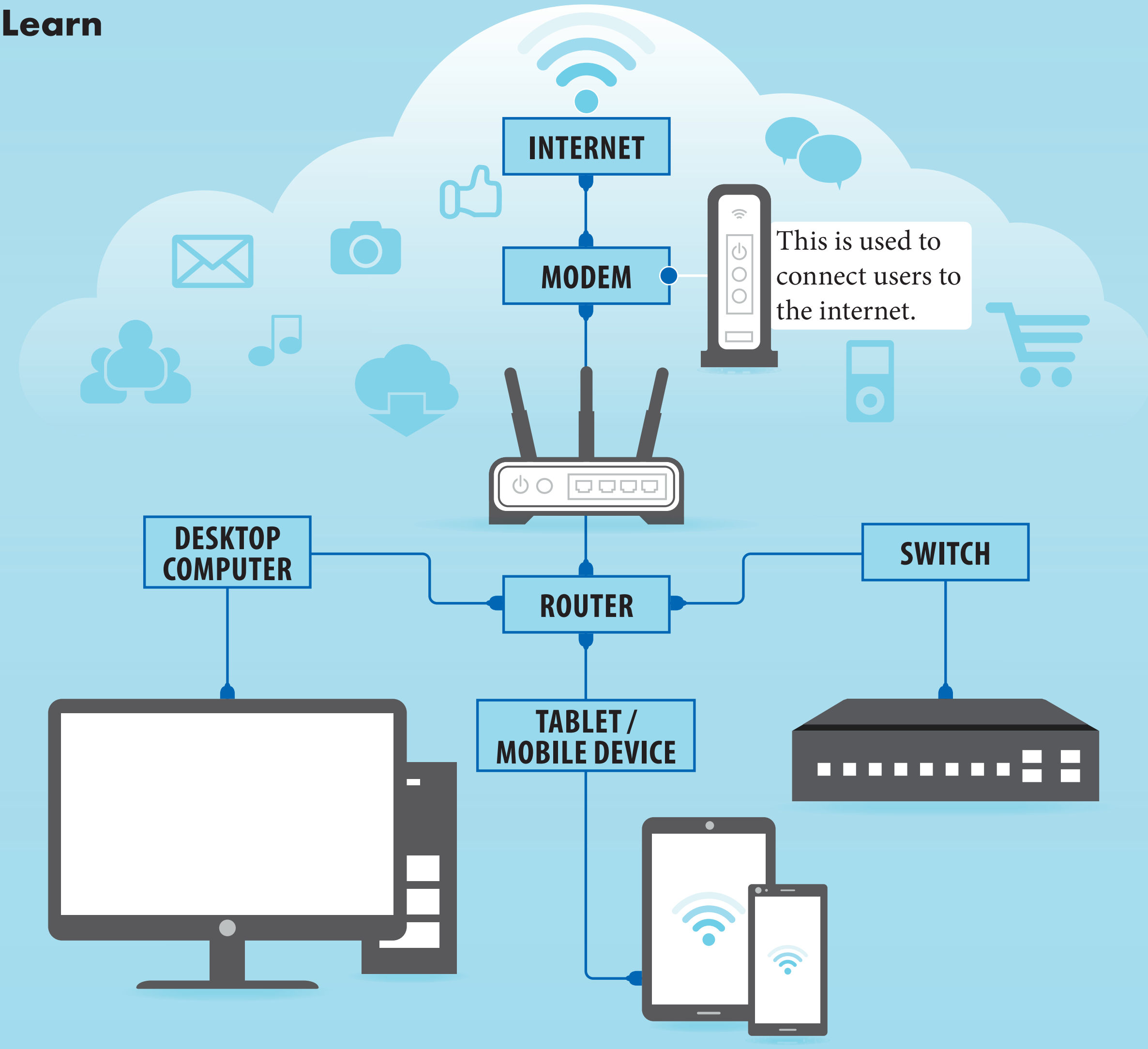
Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**		
• Describe the elements (components) of a computer network.	☐ Very well	☐ OK	☐ Need more work
• Describe how common network devices function.	☐ Very well	☐ OK	☐ Need more work
• Discuss some internet connection problems and how to deal with them.	☐ Very well	☐ OK	☐ Need more work

Engage

Networks are groups of devices or things that are connected to each other for a common purpose.

Learn



Making connections

Wired networks use physical wiring and cables which are plugged into ports on devices. Wireless networks connect without wiring (wireless or Wi-Fi).

MODEM: a device that connects a local area network (LAN) to the internet. It converts the signal from the internet service provider (ISP), which transforms into a digital signal that can be read by devices.

SWITCHES: they can send data to a specific device over a network, which helps to make connections easier and faster.

Artificial intelligence (AI)

Artificial Intelligence (AI) is a comprehensive term for computer applications that perform complex tasks that simulate the thinking and performance of the human element, such as the ability to learn and reason. By providing these technologies with information and knowledge related to a subject, and possible answers to all possible questions, the machine can give answers to the data provided, such as writing an article on a topic and inquiring about historical events and their sequence. AI also works to imitates sounds when provided with the tone of voice of an actual human being.

Explore

Think about the perfect network for your classroom. Which network devices and computers would be used (PC or mobile devices)? Share your ideas with a partner and give reasons for your answers.

Review

1. Imagine you want to research a topic on the EKB. What computer network hardware would you need to connect to the EKB? List some ideas and share with your partner. What is similar and different about your ideas?
2. Look around your local community for computer networks. Choose two local community computer networks and write the different computers and network devices that you think are used in these places.

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can ...** box.

Learn by doing

LESSON 2 COMPUTER NETWORK DEVICES

Comprehension

1 Read and write

Read the examples and name the device.

Role of the device (component)	Device name (component)
1. … connects network devices to one another.	
2. … connects a modem to different networks.	
3. … connects users to the internet.	

2 Read, think, and write

Read the statement in the box. Explain two functions that switches perform to make them intelligent.

Switches are intelligent because…

1. ______________________________

____

2. ______________________________

____

Critical thinking

3 Think and write

Think about the network equipment you will need for the following scenarios. Draw and label the networks.

1. Fares wants to connect his laptop to his parent's desktop computer.

2. Everyone in Mostafa's football team needs to access the internet to play online multi-player football games on a mobile device.

ICT and Me

4 Think and write

Share what you have learned with a friend. What would you teach them about switches and mobile devices? Write your notes below.

____

____

____

5 Think, write, and discuss

Write about one way you would like to use AI in your everyday life.

____

____

____

LESSON 3 TECHNOLOGY AND ARTIFICIAL INTELLIGENCE (AI)

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Explain the terms virtual reality, augmented reality, and artificial intelligence.	☐ Very well ☐ OK ☐ Need more work
• Give examples of virtual reality, augmented reality, and artificial intelligence.	☐ Very well ☐ OK ☐ Need more work
• Discuss how to employ/use advanced technology in our lives.	☐ Very well ☐ OK ☐ Need more work

Engage

What technological innovations do you think will be created in the next twenty years? What will they be used for?

Learn

Augmented reality, virtual reality, and artificial intelligence feel futuristic, but they are already being used in everyday life.

Virtual reality (VR)

Virtual reality (VR) is a virtual 3-D environment that allows users to explore and interact with the surroundings, as if it were reality. To experience VR, users often wear a VR headset that blocks out the real world and provides views that immerse the user in another world.

In the classroom, VR can take you to a world where insects and atoms are bigger than you, so that you can study them closely. It can take you to a museum thousands of miles away, or to a historical site hundreds of years ago.



Augmented reality (AR)

Augmented reality (AR) combines the real world with a virtual world by adding images using computers. This can be done through a smartphone camera or a tablet and will show a 3-D model of what the real world looks like. For example, students in a math class can point their smartphone camera at a flat surface and project a 3-D image like a cube or cylinder onto the surface, as if the figure is in front of them.
AR helps students become active participants in learning and makes learning more memorable.

Artificial intelligence (AI)

Artificial intelligence (AI) is the ability of the computer to think, learn and deduce, as the computer learns by analyzing the available examples. For example, it predicts the word you will write from words you have written previously.
AI is used to unlock your phone with facial recognition.

How can futuristic technology improve everyday life?

Futuristic technologies can also improve the lives of people of determination. For example, visually impaired people can use AR to see their family members up close. Disabled individuals can use virtual assistants powered by AI to accomplish everyday tasks, such as making phone calls and navigating their computer using their voice or sign language.

Explore

In a small group, consider how future technology could improve the lives of people of determination. Brainstorm future AI, AR, and VR technologies that could help them overcome the challenges they face. Share your favorite idea with the class.

Review

1. How would you use AR, VR, and AI in your learning process?
2. Do you think AR or VR can include AI capabilities? Why or why not?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 3 TECHNOLOGY AND ARTIFICIAL INTELLIGENCE (AI)

Comprehension

1 Look and answer

Read the items below. Explain how each item might use AI, AR, or VR.

1. A robot vacuum that uses AI to avoid furniture and stairs.

____

____

2. An AR app that shows you how new furniture will look in your house.

____

____

3. A VR online tour of the tomb of King Tut, that allows you to "walk" through the tomb.

____

____

ICT and Me

2 Think and write

1. Make a list of five everyday activities that you do at school or home, such as completing homework, or washing dishes. Brainstorm ways that you could use AI, AR, or VR technology to make these tasks simpler or faster. Use your imagination (your suggestions do not need to be based on technology that is available today).

	Activity	Future improvements
1.		
2.		
3.		
4.		
5.		

2. What new jobs do you think will need to be created in order for the technological innovations you brainstormed above to be made?

____

____

3. In a small group, share 2 or 3 of your favorite improvements from above.

Research

3 Review and write

1. Use the Egyptian Knowledge Bank to locate websites that include AR and VR experiences in Egypt. List the sites you find here.

2. Explore one of the AR or VR experiences you found on one of the websites above. Describe your experience in a small group. Include the name of the website, the name of the experience, and what you saw and heard.

Critical thinking

4 Think and write

1. Research shows that using AR and VR in the classroom can better engage students, improve how much a student learns and how long they remember it, help them remember difficult concepts, and expand educational opportunities. Why do you think this is?

2. What examples can you think of where artificial intelligence is used in daily life?

LESSON 4 EVALUATING CUTTING-EDGE TECHNOLOGY

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Discuss cutting-edge technology user experience.	☐ Very well ☐ OK ☐ Need more work
• Share ideas to develop an assistive technological product.	☐ Very well ☐ OK ☐ Need more work
• Evaluate one of the advanced technological devices.	☐ Very well ☐ OK ☐ Need more work

Engage

Which apps and games do you enjoy using the most? What aspects make them enjoyable? Share and compare your ideas with your partner.

Learn

Reliable cutting-edge technology

Cutting-edge technology is defined as the latest and most advanced version of a service or product.
Assistive technology helps people of determination, for example, screen magnification software, hearing aids, and programs that turn speech to text and text to speech.

Cutting-edge technology, such as artificial intelligence (AI), augmented reality (AR), and virtual reality (VR), has transformed life in ways that were unimaginable even a while ago. These changes are emerging in new and exciting ways to help in education, and to improve lives and inclusion in society, such as the assistive technology smart gloves that empower deaf people to translate their signs in real time to spoken or text output.

It is important to be objective and evaluate these new technologies that are pushing the frontiers of knowledge. By evaluating, society as a whole is better informed to make decisions regarding the use and development of such technologies. There are different evaluation tools that we can use.



A visually impaired man uses a scanning and reading machine

User experience

'User experience' is how to use the product and interact with it, and how to evaluate the experience. User experience is often broken into different areas, and can be positive or negative, for example:

Accessible: Is it accessible for people of determination?

Credible: Are the company and its products trustworthy?

Desirable: Does the product meet your needs?

Findable: If there is an issue with the project or service, can I find the solution?

Usable: Is it easy to use?

Useful: Is it practical?

Valuable: Does this product improve my life or help me learn?

Meeting needs

User experience is interlinked with the development of products and services. For example, cutting-edge assistive technology is incredibly varied, but the goal is the same – to improve someone's independence, and consequently inclusion in society.

Explore

Think of different cutting-edge technological products to benefit someone's life in these scenarios.

- A person with low vision who needs to access texts, and reading books.
- A person of hard hearing who needs to know when someone is at the door or calling their phone.

Review

1. Think of different ways that cutting-edge technology products can benefit someone's life. List three reasons and compare with a partner.
2. Do you think it is important to stay up-to-date with cutting-edge assistive technologies? Explain to your partner.

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 4 EVALUATING CUTTING-EDGE TECHNOLOGY

Comprehension

1 Look and match

Match the 'user experience' to the definition.

Accessible	Credible	Desirable	Findable	Usable	Useful	Valuable
a	b	c	d	e	f	g

1. If there is an issue with the project or service, can I find the solution?	☐
2. Is it easy to use?	☐
3. Is it accessible for people of determination?	☐
4. Are the company and its products trustworthy?	☐
5. Does this product improve my life or help me learn?	☐
6. Does the product meet your needs?	☐
7. Is it practical?	☐

Research

2 Complete the steps as you research

Research a cutting-edge product that could help someone that you know.

1. Use a search engine to find results for companies that sell the product you want. Choose a specific company that sells the product.
   Company: ____________________

   Brand name of product: ____________________

2. Research the product. Think about the user experience areas you learned about. As you research the product, answer the following by checking the applicable boxes: Is it...

☐ valuable ☐ accessible ☐ useful ☐ usable

☐ credible ☐ findable ☐ desirable

3. Use the space below to explain your choices and to draw a diagram of the product chosen

3 Evaluate

1. Use your answers to evaluate the cutting-edge assistive technology that you researched. Share with your group.
2. Use what you found to update and improve your product design.

Critical thinking

4 Think and discuss

1. How do you think a person of determination's life would change if they had access to cutting-edge assistive technology? Add some ideas below.

   ____

   ____

   ____

2. Discuss your ideas with your group.

ICT and Me

5 Think and answer

Write about when you, or a person of determination, used a cutting-edge technology product.

____

____

____

LESSON 5 DIGITAL RESEARCH SKILLS

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**		
• Use keyboard shortcuts such as copy, cut, and paste in word processing.	☐ Very well	☐ OK	☐ Need more work
• Differentiate between (database, library, and internet) searches.	☐ Very well	☐ OK	☐ Need more work
• Identify the most effective search tool for a given purpose.	☐ Very well	☐ OK	☐ Need more work

Engage

When was the last time you searched online for something? Tell your partner what you were searching for, why, and how quickly you found the information you were searching for.

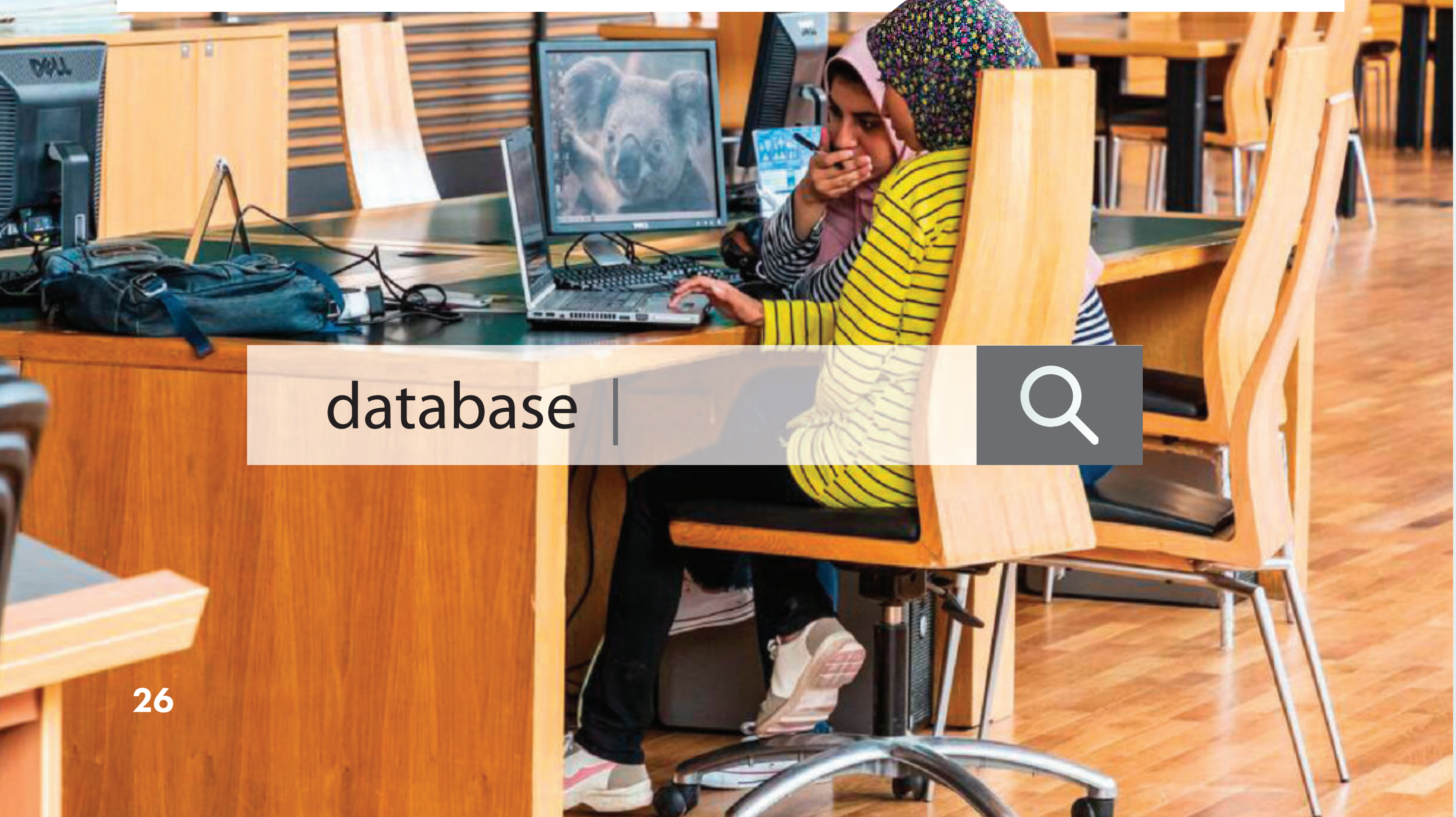
Learn

Useful digital editing tools

Copy, paste, and cut are some of the most commonly used word processing commands and are very useful when copying, pasting, or cutting text, information or images into a word processing file.

Digital search tools

Internet searches, specialized search engines, and verified online libraries all search for information, but the results will be different. Knowing the results that you need helps to inform the search tools you could use.



Search engines

Search engines help people to search internet websites based on the key words and phrases. They are user-friendly, very fast, and often result in many results. Use your evaluation skills to ensure the content you select is credible and accurate.

Databases

Databases are a collection of information which are typically stored in a computer system and can be accessed, for free, through your school. You can also search for information from magazines and newspapers through the databases on the computer in the school library. A database is a good place to search.
The EKB is an example of a general database which covers many subjects. The results will be credible and accurate.

Library catalogs

A library catalog is a database which includes all the items owned by a library. A library catalog search may include recently published books, including e-books with the most recent research about a subject, such as the catalog of the Library of Alexandria, which you can use through the library's website on the internet through the following link: https://www.bibalex.org.

Conducting a database search

When you search any database, use a key word search. Review the results for subject headings and redo the search with those terms. You can use other database fields, such as author or journal title, to narrow a search. Limiting a search range by specifying dates will help you find the most up-to-date research.

Explore

What other shortcut commands do you know? Search the internet for other commands and add them to your list. Share your list with a partner and exchange useful ones.

Review

1. What are the benefits of using internet searches, databases, and library catalogs to conduct research?
2. What advice would you give to a student who:
   - only uses general online search engines to conduct research?
   - copy-pastes information, but does not express the meaning in their own words?
   - copy-pastes information, but does not cite sources used?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing **LESSON 5** **DIGITAL RESEARCH SKILLS**

Research

1 Read and answer

Write the name of the field (subject, title, author, date) to search for the following information in a database or library catalog.

1. An article about the best international databases that support the Arabic language.

____

2. An article about Artificial Intelligence (AI).

____

3. An article about the Egyptian Knowledge Bank as the largest free global database for Egyptian students that supports Arabic.

____

4. Information about I-Stem.

____

2 Search and organize

While using the internet or the school library, search for additional reliable sources related to the cutting-edge technology you selected in Lesson 4 Learn by Doing. Use the table to help you. Remember to source references.

Topic	
Database or library catalog name	
Possible keywords to search	
Subject heading from results	1. 2. 3.
Images and or video clips (if any)	

3 Think and answer

1. What evaluation criteria did you use for the information sources you found?

   ____
   ____
   ____

2. Review the search results. List the three resources (and their formats: book, journal, or newspaper article, etc.) that you think will provide the most information about your topic.

   ____
   ____
   ____

3. Read the three resources. Use keyboard shortcuts to take notes about each item in a Word document. List the shortcuts you used.

   ____
   ____
   ____

4. List three main points you learned from the resources you read.

   ____
   ____
   ____

ICT and Me

4 Think and answer

What other examples of cutting-edge technology have you encountered at home, at school, or in your local community? How would you make others aware of this topic?

____
____
____
____

LESSON 6 MOBILE DEVICES

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Identify the common features of mobile devices.	☐ Very well ☐ OK ☐ Need more work
• Provide suggestions about how mobile devices can support learning.	☐ Very well ☐ OK ☐ Need more work
• Describe how mobile devices can improve the lives of people of determination.	☐ Very well ☐ OK ☐ Need more work

Engage

Why is it important to be able to find information easily? How do mobile devices make finding information easier?

Learn

Types of mobile devices

Mobile devices include smartphones, tablets, and e-readers. Smartphones and tablets can be used to surf the web and check email, similar to PCs. They often have high-quality cameras, speakers, and screen resolution. E-readers look like tablets but are mainly used for reading books.

Mobile devices features

These handheld computers are portable and can access the internet. They can be held in landscape or portrait mode, laid flat, and connect to other devices. Many mobile devices function by touch.



Mobile devices and learning

Mobile devices offer higher engagement levels for students and extend learning beyond the classroom. For example:

1. Creating short videos or taking photos for projects.
2. Scanning QR codes to access content-related videos, audios, and texts created by the teacher, and students themselves.

Some people say that having such easy access to any information has decreased thinking skills, social interaction, and excessive use of the mobile device for social or recreational reasons is another potential problem. There is also a problem associated with the small size of the screens: reading texts and viewing graphics is complex and difficult.

Providing solutions with cutting-edge technology

Without cutting-edge technology products and apps for tablets and smartphones, people of determination face challenges accessing education, healthcare, and employment. Cutting-edge technology installed on mobile devices is providing new solutions. For example, it can provide people of determination with educational services at home. A speech assistance app can help a non-verbal student participate in a class.
Assistive software on tablets and smartphones can help people of determination in the workplace to manage time and tasks.

Explore

Think of a program or app that you would like to help with your education. Brainstorm ideas and then share with a partner.

Review

1. What are the common features of mobile devices? Describe them to a partner with the help of your teacher.
2. How can mobile devices improve student learning? Share ideas with a small group.

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 6 MOBILE DEVICES

Comprehension

1 Think and write

What are the three most important benefits of mobile devices as educational tools?

	Benefits	Why?
1.		
2.		
3.		

Life Skills

2 Look and write

Write one appropriate and one inappropriate way to use the following ICT tools on a mobile device when you are studying in a classroom.

	Appropriate Use	Inappropriate Use
1. Writing texts		
2. Playing a game		
3. Using spell check or a calculator		
4. Watching multimedia such as a video		

Critical Thinking

3 Think and write

1. What are the top three problems when using mobile devices in a learning context? Write them in the table and then think of possible solutions.

	Problems	Solutions
1.		
2.		
3.		

2. Brainstorm how you could use mobile devices to find more information about the assistive technology you selected in Lesson 4.
   - How could a librarian or a teacher help you?
   - How could you use mobile devices to connect with your classmates about the topic?

ICT and Me

4 Think, write, and discuss

1. When used for education, do you think the advantages of mobile devices outweigh the disadvantages? Why or why not?

___

___

___

2. How could mobile devices be used in your community to help people of determination to solve other community problems?

___

___

___

LESSON 7 OPERATING SYSTEMS

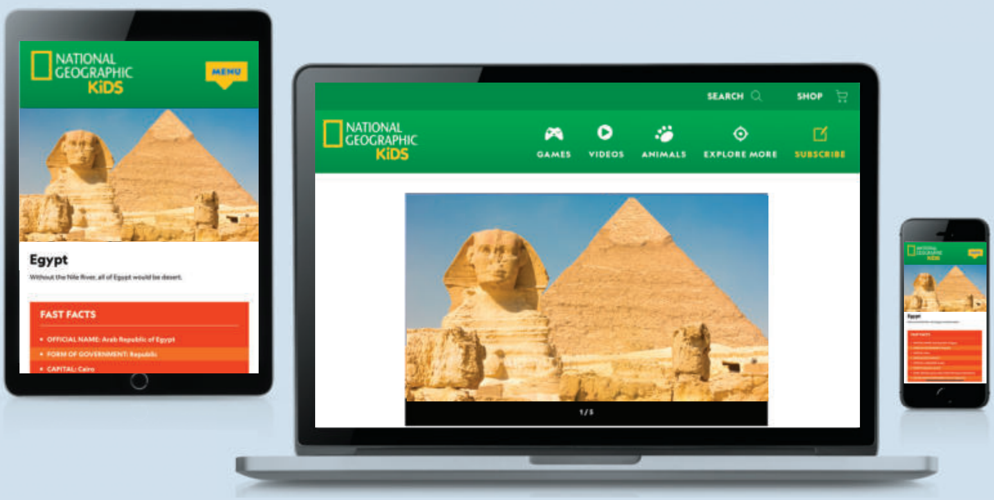
Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**		
• Explain what an operating system is.	☐ Very well	☐ OK	☐ Need more work
• Compare the most popular PC and mobile operating systems.	☐ Very well	☐ OK	☐ Need more work
• Identify my devices' operating systems.	☐ Very well	☐ OK	☐ Need more work
• Discuss the programming language HTML.	☐ Very well	☐ OK	☐ Need more work

Engage

What do you notice when you switch from using one smartphone to another and, in addition, when you use a tablet and switch to a PC? Share your ideas with your partner.

Learn



Operating systems

An operating system (OS) is the software that manages a computer's functions, such as memory, drives, printers, and other devices. It also includes accessible devices such as screen readers and magnifiers. It runs a computer's software and hardware, and allows a user to communicate with the computer easily.
Most computers come pre-loaded with an operating system. For example, Microsoft Windows is on most computers worldwide, while Apple computers run on macOS.

Mobile operating systems

Mobile devices have mobile operating systems. The most popular mobile OSs are Android, and Apple iOS, which is used on the iPhone and iPad.

Android uses open-source software, which means a person can change and read the programming code. Apple iOS is closed; it can't be seen or changed by the public. Both Android and iOS perform the same basic functions, such as messaging, web access, video chat and touch function.

Cutting-edge operating systems

Other types of operating systems power different types of cutting-edge technologies. For example, the Robot Operating System (ROS) is an open-source software used for building robot applications. And there are multiple operating systems powering self-driving cars, including those developed by Apple CarPlay and WindowsTM Automative as well as individual car companies.

Programming languages

Instructions to a computer are given in code. Over time, programming languages have evolved from a simple machine language (binary) to high-level human-like languages. Computer languages often share similarities, so once you learn one, it is easier to learn others.

Programmers choose a language based on pursued purpose. Programming languages are usually open source. Anyone can see, modify, or distribute the code.

For example, programmers use Hyper Text Markup Language (HTML) to create web pages. HTML is commonly chosen for website creation because it is easy to learn and to use. It allows creators to add elements such as text, links, images, audio, and even videos to their web pages. It is easy to make changes and it is compatible with all the major web browsers.

Explore

Compare the screen layouts of different smartphones and find the similarities and differences. Discuss the benefits of each layout with your partner.

Review

1. What is an operating system on your device? What are the most popular operating systems?
2. What are programming languages and how can a program language be used to create web pages?

Self-assess

Go to the Objectives at the beginning of the lesson.

Check the correct **I can . . .** box.

Learn by doing

LESSON 7 OPERATING SYSTEMS

Comprehension

1 Look and match

Match the device type with the operating system.

1. macOS
2. iOS
3. Android
4. Windows

a. The operating system used on Apple mobile devices.
b. The operating system used on Microsoft PCs.
c. The operating system used on mobile devices other than Apple products.
d. The operating system used on Apple PCs.

Critical Thinking

2 Look, discuss, and draw (with the help of your teacher)

Below is an example of HTML. What stands out to you? What do you think each of the following codes stand for? Discuss with a partner and together draw in the adjacent box what the web page may look like based on the HTML instructions.

```
<h1>Photography</h1>
<h2>Welcome to my web page,
where I share my photos with
you!</h2>
<p>This is my <strong>favorite</
strong> photo. This
<strong>beautiful</strong> tree is
in my backyard. I took this picture
on a warm, summer day as the sun
set.</p>
<img src=”html.jpg: alt= “HTML”
width=”1200” height=”620”>
```

Research

3 Think, answer, and discuss

Why might a programmer learn more than one programming language?

____

____

____

____

ICT and Me

4 Think, research, and answer

1. List the devices you use at school and home. Then research and write the operating system for each device.

Device	Operating System
1.	
2.	
3.	

2. Do you have a preferred type of device or operating system? What is it and why do you like it?

____

____

____

____

____

____

____

LESSON 8 WEBSITE DESIGN

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Write an HTML code for basic parts of a web page.	☐ Very well ☐ OK ☐ Need more work
• Identify some HTML components of web pages.	☐ Very well ☐ OK ☐ Need more work
• Create the concept and plan a website that promotes a cutting-edge product.	☐ Very well ☐ OK ☐ Need more work

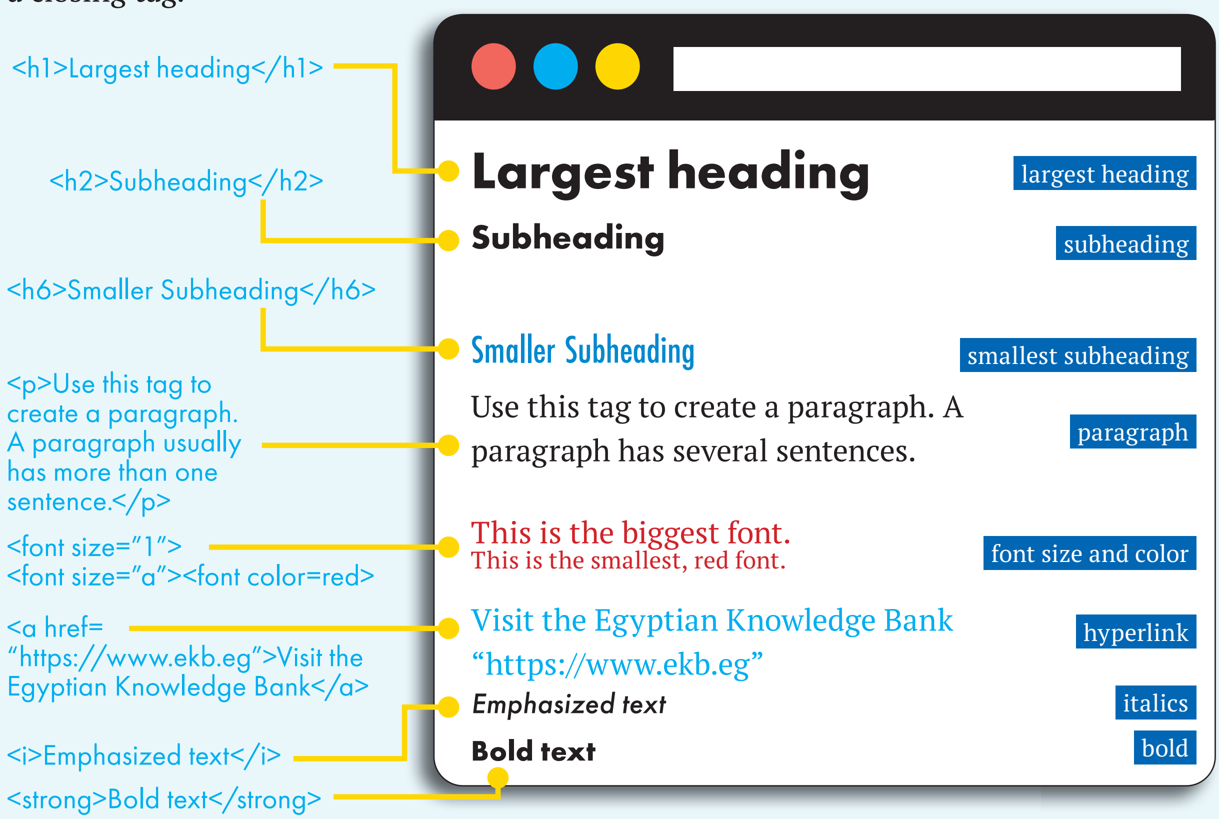
Engage

What are your three favorite websites? What do you like about them?

Learn

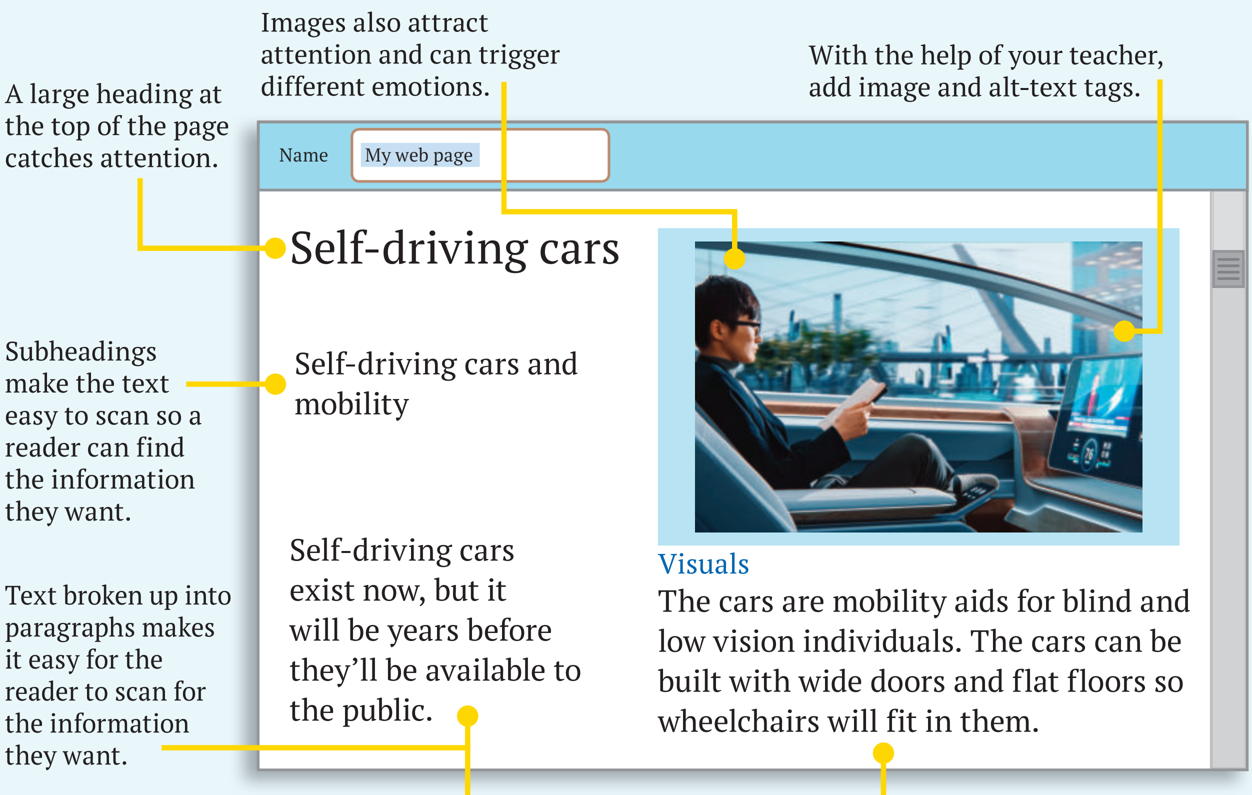
HTML tags

Hyper Text Markup Language (HTML) is the standard programming language used to create web pages. It describes the structure of a web page and consists of a series of elements such as headings, paragraphs, links, and images. These are the building blocks of web pages. Web browsers read HTML documents and display the content according to the HTML tag. Tags have three main parts: an opening tag, the content, and a closing tag.



Website design

HTML elements break up web pages to make them easier to scan, read, and navigate. An HTML code can also help people with low vision to distinguish between parts of a web page.



Explore

You are going to develop a website using HTML. Think about the information you have gathered regarding the cutting-edge assistive technology product you selected in Lesson 4. How would a website best showcase this product? What would users get out of visiting this website?

Review

1. Which of the HTML elements you read about in Learn are visible when you look at a web page? Which can you only see when you inspect the web page?
2. Now that you know more about how a web page is created, do you have a better or different idea about why you like the website you described in Engage? What are those ideas?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 8 WEBSITE DESIGN

Life Skills

1 Plan and write

1. Use the information you discussed with your partner in Explore, to write HTML tags for your web page heading (your topic) and subheadings for your three main ideas.

   Page heading: ______________________________

   Subheading 1: ______________________________

   Subheading 2: ______________________________

   Subheading 3: ______________________________

2. Use HTML paragraph tags to write an introductory sentence for each of your three main ideas.

1.	
2.	
3.	

3. Use HTML image tags to identify three images you will use on your web page. Then use HTML alt-text tags to describe the images.

HTML image and alt-text tags	
1.	
2.	
3.	

4. Think of the topic of your website and why you are creating it. Then write your remarks in the table.

Which colors will you use for the text? What about background colors?	Which font will you use? Is it readable? What size of font?	What layout will the website have? How can you organize content so it is easy for people to access?

2 Create your web page plan

Create your web page plan as a poster, or by designing it using Microsoft Word.

3 Share your web page plan

Present your web page plan to the class. Your classmates will give you feedback, so listen carefully.

ICT and Me

4 Read and discuss

1. What were the strengths of your website plan? What might you change about it?

____

____

2. How do you feel after learning basic HTML and how to plan a website page?

____

____

3. How can you apply these new skills in the future?

____

____

REVIEW THEME 1

Vocabulary

1 Write and compare

Write a sentence for each set of words to explain the connection between them. Then compare your sentences with a partner.

1. wired networks and wireless networks

____

2. augmented reality (AR) and artificial intelligence (AI)

____

3. general databases and subject database

____

Review Questions

2 Read and answer

1. How does a modem work and why is it necessary for a connection to the Internet?

____

2. What categories are used to evaluate user experiences using assistive technology?

____

3. What is virtual reality (VR)?

____

4. What are databases?

____

5. What are some common features of mobile devices?

____

6. What programming language is used to create web pages?

____

7. What is open-source software?

____

8. What are some HTML components of websites?

____

Critical Thinking

3 Think and answer

1. Explain how cutting-edge technologies can benefit people, included people of determination.

____

____

____

2. Explain why learning HTML tags is a useful skill to learn and develop in your opinion.

____

____

____

Essential Question

4 Think and complete

After studying this theme, I know that I can conduct effective online searches, write HTML programming language, and create a website plan because _______________

____

____

____

Activity

5 Research, create, and show

Create your own exhibition about programming language and cutting-edge technology.

Find photographs, screenshots, or draw pictures that relate to it. Make labels and write captions for your photographs, screenshots, and illustrations.
Include the following:

- the programming language you chose
- three interesting facts about the programming language
- why it is important in the development of cutting-edge technology
- how it can be used to develop cutting-edge websites
- how people can learn programming language

Invite your classmates to view your exhibition.

THEME 2

Digital Safety and Security Precautions

SPOTLIGHT ON THEME 2

In this theme, you will learn the importance of taking digital safety and security precautions when dealing with the internet and digital devices, and how to evaluate digital sources.
You will also complete a project using what you have learned.

ESSENTIAL QUESTION:

How can we use ICT tools safely?



LESSON 1 EXPLORER IN ACTION

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Identify the importance of using remote sensing technologies to help others complete their tasks.	☐ Very well ☐ OK ☐ Need more work
• Research different applications online.	☐ Very well ☐ OK ☐ Need more work
• Design an application.	☐ Very well ☐ OK ☐ Need more work

Engage

Do you, your parents, or family members use an app to find your way? Is it useful?

Learn



Ms. Didi El-Behaedi is a National Geographic Explorer who is working towards a PhD in Egyptian Archaeology at the University of Chicago in the U.S. She uses geospatial technologies, such as Geographic Information System (GIS), Remote Sensing (RS), and Global Positioning System (GPS) in her work. These technologies assist in the geographic mapping and analysis of Earth and human societies. Ms. El-Behaedi has worked as a remote sensing research consultant at NASA and has excavated several archeological sites in the United States, France, and Egypt.

She has been working in Fayum governorate to learn how ancient Egyptians dealt with the decreasing amount of water in the lake. Ms. El-Behaedi uses images from remote sensors to identify, map, and date the ancient shores of the lake and find previously undiscovered ancient settlements. In another project, she relied on remote sensing to build an app that simulated flooding at Abu Simbel Temple.



GPS is a space-based radio-navigation system.

Ms. El-Behaedi uses computers to find new archeological sites by inputting data about known archeological sites and programming the computer to look for similar sites. This is called “machine learning.”

Ms. El-Behaedi has published several reports on her discoveries. She writes her texts, creates figures, and edits images using her laptop and iPad. She has published her work in trusted journals. To protect her information, she installs an antivirus software, uses strong passwords on her devices, and frequently backs up her data.

She conducts online research by reading articles in digital libraries and journals. She uses citations in her reports by writing down the names of books or sources from which she obtained information. If needed, she contacts individuals or institutions to ask for permission to publish images or infographics.

Ms. El-Behaedi uses the knowledge and experience she has gained in her excavations in Egypt to learn more about the country's cultural heritage.



Video

Watch the video about Ms. Didi El-Behaedi. What does her application, Satellite Observations for Archeological Preservation (SOAP), do? How can the user manipulate its data?

Explore

Didi El-Behaedi uses machine learning to locate unknown archeological sites. She inputs data on size, form, elevation, and texture from known archeological sites and has the computers search locations with similar features. What data could we provide to computers that would help us better understand ancient civilizations, compare them to the present, and predict the future? Discuss with your classmates.

Review

1. How can remote sensing help you discover and develop your governorate? Why would it be useful?
2. Why is it important for scholars to share correct data and protect their information?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 1 EXPLORER IN ACTION

Comprehension

1 Read, think and answer

Remote sensing is the science of collecting information about an object without touching it. It helps us collect data from places that are dangerous or otherwise impossible to access. The technology is used in many fields, including meteorology, geology, and geography. Remote sensors receive electromagnetic waves and transform them into signals. These signals are presented as numbers or images. Infrared remote sensors can penetrate earth, which is why they are used in archeological excavations. Active sensors, such as radar, produce and send out electromagnetic waves, then measure those waves when they return from bouncing off an object. Radar can measure the speed of objects, which is why they are used to monitor the speed of vehicles. Remote sensors can be mounted on towers, helicopters, airplanes, and satellites.



Radar detects speeding cars.

1. In your opinion, why are remote sensors important in many fields in life?

____

____

____

____



Sonar detects fish.

Research

2 Search and match

Use the internet to research these remote sensors. Then match each type with its uses.

radar	sonar

1. _______________: used for mapping the ocean floor and finding fish

2. _______________: used in cars for motion detection

Think and answer about me

3 Think and answer

Think about the remote sensors you researched in exercise 2. Then answer the questions.

1. How can they improve people's lives?

____

____

2. Which type of sensor do you want to learn more about? Why?

____

____

Creative planning

4 Think and write

Suggest an application that could help one of your family members in their work.

1. What will the application do?

____

____

2. What type of remote sensor will it use? Why?

____

____

3. Why will this application be useful?

____

____

LESSON 2 HOW TO DEAL WITH ELECTRONIC GAMES

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**		
• Discuss the dangers of electronic games.	☐ Very well	☐ OK	☐ Need more work
• Explain how to avoid the dangers of electronic games.	☐ Very well	☐ OK	☐ Need more work
• Identify the impact of electronic games on my health and how to manage this through family care.	☐ Very well	☐ OK	☐ Need more work

Engage

Why do you think electronic games are so popular with your age group?

Learn

Electronic games which are played over the internet with friends, can be a lot of fun to play. They can help to promote critical and creative thinking, and encourage teamwork. However, there are several disadvantages.



Online games can be fun to play, but they can impact health

Physical dangers: Playing too often can affect your sleep cycle. It may keep you stimulated and prevent you from falling asleep. It can strain your eyes, cause back problems because you stay hunched over while playing, and cause headaches. Because you may not be exercising or eating properly while playing electronic games, there's also a danger of gaining weight.

Psychological dangers: You may become anxious and depressed because you feel lonely in the real world, or because you are being bullied online. It can make some people aggressive, as some games promote violence, and that can prevent some players from thinking rationally when facing situations. All of these factors can negatively affect your relationship with family and friends.

Security dangers: Multiplayer games, in particular, can put your security at risk. If you share too much personal information, strangers may be able to access your name, email, phone number, and address. Large gaming communities are filled with cyberbullies. Hackers can cause your information to be leaked and viruses are easily spread.

Responsible gaming

You can limit the dangers you are exposed to by, for example, only playing games and chatting with people you know and trust, by not using personal information in your username and passwords, and by not using a webcam.

You should also accept limits that your parents set to prevent unhealthy gaming habits. For example, make sure that gaming does not replace real-life activities like spending time with your family, meeting friends, homework, maintaining a healthy diet, getting enough exercise or sleep.

When you do encounter dangers, don't be afraid to tell your parents. They want to help you. That could include family discussions and increased supervision when using the internet.

Explore

What electronic gaming dangers do you feel might personally affect you most? Include one physical, one psychological, and one security danger. Provide a solution that includes how family care might help you.

Review

1. Discuss the dangers of electronic games.
2. What are steps you can personally take to avoid the dangers of electronic games?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 2 HOW TO DEAL WITH ELECTRONIC GAMES

Comprehension

1 Read and write

Read the following forum post (a dialogue between Omar and a forum visitor) and reply to it. Include at least one physical, one psycological, and one security danger that the Gamer needs to be aware of and suggest a possible solution.

Hi Omar!
I love to play electronic games online. I'm currently in the middle of playing a game that has more than 100 users online at a time! It's so much fun. However, my parents have told me they want to set time limits – or maybe even stop me from playing at all! They think I'm playing too much and that it's not safe. I told them I have a headache because I'm stressed out, not because of the game! Yes, I'm tired and I probably could sleep better, but I don't get the big deal. I'm young and healthy! I'm always careful with my personal information. My parents want me to play outside more, but I think that's boring. But I don't want to upset them. Omar, do you agree with my parents? What should I do?
From a gamer

Dear Gamer,

____

____

____

____

____

Omar

Critical Thinking

2 Read, think, and write

1. What do you think is the most concerning danger of electronic games for your age group? Why?

____

____

____

2. What do you think is an appropriate daily time limit to play electronic games? Why?

____

____

____

____

____

3. Share your response with your parents. Do they agree? Why or why not?

____

____

____

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ICT and Me

3 Think and answer

Think about games you have played. If you haven't played electronic games, think about board games, or other in-person games you have played. What problems or dangers have you encountered? How did you handle them?

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4 Think, answer, and discuss

How will you protect yourself against the dangers of electronic games? Share your ideas with a partner.

I promise to... _______________

LESSON 3 PROTECTING YOURSELF FROM DIGITAL THEFT

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Identify different features that I can use to protect my data.	☐ Very well ☐ OK ☐ Need more work
• Discuss personal responsibility for protecting my digital devices.	☐ Very well ☐ OK ☐ Need more work
• Create an infographic to share knowledge about how to protect devices from digital theft.	☐ Very well ☐ OK ☐ Need more work

Engage

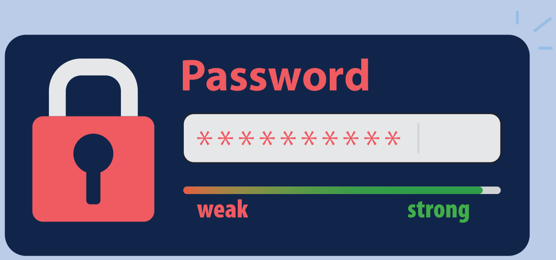
How do you keep your personal items safe at home or school? How do you keep your digital data safe in these places? Make a list of the similarities and differences.

Learn

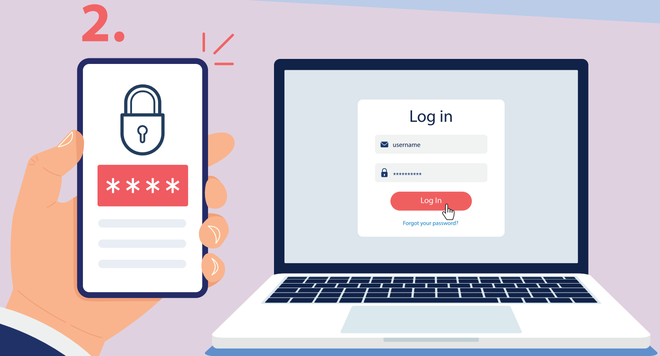
It is irresponsible to leave your devices at risk by not taking proper safety precautions. You have learned about the importance of strong passwords. Let's look at some more ways you can effectively protect your devices from theft.

1. PASSWORDS

Passwords with at least eight random letters, numbers, and symbols are the most secure.



2.



MULTI-FACTOR AUTHENTICATION (MFA)

MFA requires at least two ways of identifying yourself, usually through passwords, pins, and security codes or personal questions.

3. FINGERPRINT AUTHENTICATION

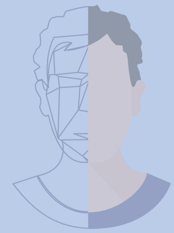
This type of authentication will scan your finger, as a way of confirming it's you.





4. **FACIAL RECOGNITION**

Facial recognition software will scan your face using your device's camera. This way, only the user's face can be used to open their devices or devices' apps.



5. **FULL ENCRYPTION**

Encryption protects your information so only you can access it on your device, as long as you have set your password.



Companies in particular need to protect their websites and their customers' information. Therefore, Egypt has introduced the Data Protection Law to protect its citizens. It requires companies to use strict security stands to protect their data. They must report immediately if they've been victims of data theft, and let their customers know immediately as well. You should report data theft too. If you think your data has been compromised, be sure to tell a parent or trusted adult. They can let the proper authorities know. You should also tell family and friends you communicate with online.

Explore

What simple steps can you take to activate and upgrade data security on your devices? Take notes and share them with the class.

Review

1. Discuss the importance of protecting your data and the features you can use to protect it. Find out from your group when they last did a digital health check on their devices.
2. What is the importance of reporting data theft, both for companies and individuals?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can ...** box.

PROTECTING YOURSELF FROM DIGITAL THEFT

Comprehension

1 Read and create

Create an infographic about how to protect yourself against data theft. Use the template to make notes before creating your content.



What is the title of your infographic?
(It should not exceed two lines. Think about the font used, font size, and use bold lettering.)

Write six tips about how to protect yourself against data theft.
(Use subheadings to help organize this in easy-to-read sections.)

Think about what graphics or images you will use.
(Remember to cite sources as well.)

Critical Thinking

2 Think and answer

Answer the questions.

1. How could data theft affect your emotional well-being? How would it compare to theft of personal items in real life?

2. Do companies have more responsibility than individuals to both protect against data theft and to report it when it happens? Explain.

3. Your friend is a data theft victim, but they do not want to tell their parents in case they lose device privileges. What advice would you give to your friend?

Issues and Challenges

3 Write and discuss

How confident are you that you can protect yourself from data theft? What steps would you take if you detected an attempt to steal your data?

ICT and Me

4 Discuss

How can what you have learned about data protection make you a more responsible digital citizen?

LESSON 4 CYBER SECURITY

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**		
• Define the concept of cyber security.	☐ Very well	☐ OK	☐ Need more work
• Create a plan to use the internet safely.	☐ Very well	☐ OK	☐ Need more work
• Discuss cyber security issues.	☐ Very well	☐ OK	☐ Need more work

Engage

What safety precautions do you take in real life? Discuss them and how they could relate to online safety as well.

Learn

You have learned a lot about online safety precautions and strategies. Here is a brief recap.

- Use safe web browsers and install anti-virus protection on your devices.
- Only allow friends and family to view your social media.
- Do not communicate with people you don't know or who make you feel uncomfortable.
- Do not share personal information online.
- Use strong passwords and change them every three months.
- Verify websites that you frequent are real, safe, and age appropriate.
- Verify information you find to make sure it is accurate.

These precautions are all examples of cyber security. Cybersecurity is defined as the protection of systems, networks, devices, and data from electronic attacks that they may be subjected to when using information and communication technology applications.



Types of cyber security threats

Malware: This is the greatest cyber security threat. No matter how cautious you are, you may still get tricked. Scareware is a type of malware that pretends to be a virus alert. It tells you to click on the link to help remove it, but the link is actually the virus! Mobile malware is also problematic and unsecured Wi-Fi, for example, can open you up to malware threats.

Spoofing: Cyber criminals pretend to be a business, or a known person, in order to trick you to provide your information, or click on unsafe links. If you click on unsafe links, you are in danger of having your information compromised, money stolen, or viruses installed on your devices. Examples of spoofing are a fake domain pretending to be a business, or an email account that has the name of a trusted service, or even personal acquaintances of yours.

How to deal with cyber security threats

Stay calm, but take swift action. Let your contacts know right away so they avoid opening anything suspicious. This way you can protect those you know from the same cyber threat.

Use anti-virus software to do a sweep of your computer and remove any viruses. Confirm your security settings are up-to-date. Change your passwords – your device password, email, social media, etc. It is best to change all your passwords, even if you think you have only been hacked on one particular account. Report the threat to a trusted adult. They can decide if further action is necessary, such as reporting it to an internet service provider, or getting the authorities involved.

Creating a personal online safety plan can prepare you for potential future issues. These can include how you will protect your personal devices and information from cyber criminals.

Explore

How can you protect your personal data on social networking applications?

Review

1. How would you explain how to create a cybersafe online community to friends?
2. Why is it important to report unsafe internet situations?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing **LESSON 4** **CYBER SECURITY**

Comprehension

1 Read, write, and discuss

You are going to write a personal online safety plan to help protect you from cyber security threats. First, take notes below.

Two ways I will protect my devices:	1. 2.
Two ways I will protect my personal information:	1. 2.
Two ways I will stay safe on social networking applications:	1. 2.
Two ways I will handle cyber threats that may come my way:	1. 2.

Life Skills

2 Think and write

Review your personal online safety plan. Let others know how to both prevent and face cyber security threats by writing an email to a family member sharing what you have learned.

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Critical Thinking

3 Think and share

How can you work through the issues associated with the safety of your online personal data?

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ICT and Me

4 Think and answer

1. Have you ever faced a cyber security threat? If so, describe your feelings at that moment and how you faced the threat. If you haven't faced one, imagine how you might feel and react.

   ____

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   ____

2. How might what you have learned in this lesson change the way you handle cyber security threats?

   ____

   ____

   ____

3. Complete these sentence prompts about reducing the risk of cyber security threats.

   I will always ____

   I will never ____

LESSON 5 COPYRIGHT AND ELECTRONIC FINANCIAL TRADING

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Explain what copyright is and why it is important.	☐ Very well ☐ OK ☐ Need more work
• Discuss the concept of electronic financial trading.	☐ Very well ☐ OK ☐ Need more work
• Identify ways to stay safe while using electronic financial trading applications.	☐ Very well ☐ OK ☐ Need more work

Engage

How has posting information and ideas online affected copyright?

Learn

Copyright

Let's review what copyright (intellectual property rights) means.

- Intellectual property is someone's invention, creation or idea, that is protected by law from being copied by someone else, such as an individual or a business.
- Copyright includes written, visual, audio, video, and web material.
- "Creative Commons" refers to work that has been granted permission to share by the creator.
- Work in data libraries such as the Egyptian Knowledge Bank (EKB) is already approved for use.
- Egypt considers work in the public domain if the creator has been deceased for at least 50 years. No creator permission is required.



Electronic financial trading



A stock exchange is a market where buyers and sellers deal in units of company stocks. These stocks are called shares. The Egyptian stock exchange allows citizens to invest in any market sector, for example in food, clothing, or petroleum. Smart investors will research multiple companies before deciding which company to invest in. They analyze markets to see which companies' stocks go up or down. They will also be checking to see the products or services offered, to see if it's a good fit for them personally.

In traditional settings, an investor will have a broker – this is a person who handles the buying and selling of shares. However, electronic financial trading (e-trading) has made the process of buying and selling shares more efficient, and provides the investor with more authority. With the spread of the internet, electronic trading platforms are now common place. E-trading allows the investor to make trades on their own through websites or applications. While investors can still use a broker, e-trading allows more independence and user-friendly options. These include robo-advisors – online applications that provide financial guidance and services.

E-trading provides access to many more people who otherwise might not be able to invest. It is also easier for different companies to trade with one another faster, no matter where they are located.

Explore

In a small group, discuss ways to use e-trading applications safely. Use ideas from previous lessons. Create a final list and share it with the class.

Review

1. What is copyright? Why is it important?
2. Discuss the benefits of e-trading.

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing **LESSON 5**

COPYRIGHT AND ELECTRONIC FINANCIAL TRADING

Comprehension

1 Read and answer

1. Give an example of a piece of work where permission has already been granted to be shared. Explain how you know permission has been granted.

2. Give an example of a piece of work where permission isn't required. Explain why.

Critical Thinking

2 Read, think, and write

1. Why might someone choose to invest using e-trading instead of traditional methods?

2. Why might robo-advisors make better advisors than a broker?

Research

3 Search and write

Research more about reliable e-trading platforms (with your teacher's help). Write three tips that you feel would be most helpful to online investors.

Tip 1	
Tip 2	
Tip 3	

ICT and Me

4 Think and answer

If you could invest, how might you decide what type of company to invest in? How will you use e-trading services to help you?

LESSON 6 CLOUD STORAGE OF FILES

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**		
• Explain the concept of cloud computing.	☐ Very well	☐ OK	☐ Need more work
• Identify the advantages and disadvantages of cloud computing.	☐ Very well	☐ OK	☐ Need more work
• Discuss the role of cloud computing in storing files.	☐ Very well	☐ OK	☐ Need more work

Engage

How do you currently store personal information or files such as photos, both digitally, and in the real world?

Learn

What is cloud computing?

Cloud computing is the on-demand storing, and accessing, of data and programs via remote servers on the internet. Furthermore, it enables users to access files and data easily and conveniently from anywhere and at any time. Examples of cloud computing service providers include Microsoft 365 with its application OneDrive™, and Google with its application Google Drive™.



Remote servers connect users who are not on the local area network (LAN) to access and manage data, files, and applications via the internet.

What are the advantages of cloud computing?

- It frees up space on your devices by using cloud storage services.
- It allows you to log in and access your files from multiple devices, as long as you have internet service.
- It provides a backup for your files.
- It provides an extra layer of security by offering password protected data storage and data encryption.
- It allows you to directly share files with authorized users.

> Data encryption converts data into a code to prevent unauthorized user access.

What are the disadvantages of cloud computing?

- It requires you to have an internet connection. If you lose your internet connection, you won't be able to access files that are only stored in the cloud.
- Cloud storage is often a fee-based service. If you want to store files, you will need to pay a fee – the more storage you require, the higher the fee you will pay.
- If the cloud service you are using is a victim of a data breach, you may become a victim as well, as your information may be compromised. However, while there is a small risk, cloud services are overall extremely safe and secure.

> A data breach occurs when unauthorized parties gain access to confidential data and information.

Storing files in the cloud

Having a document management system allows you to organize your documents so it is quick and easy to find them.

- Create separate folders for different types of data like photos, videos, audio files, and documents.
- Separate school and personal information, with one folder for each.
- Label folders and subfolders clearly, so it's easy to find what you are looking for.
- Consider keeping separate folders depending on the file type, such as videos, photos, audio files, and text documents.

> Create strong passwords for files and have security measures in place. Be sure to use a strong password for any account you have on a cloud storage platform, including Multi-Factor Authentication (MFA) for additional security. All the large and reputable cloud storage services offer MFA.

Explore

In a group, discuss how you might use cloud storage to store your own personal files, including how you would organize them. Take notes.

Review

1. What is cloud computing, and how does it compare to traditional storage?
2. In your opinion, what's the main advantage and disadvantage of cloud storage? Explain.

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can . . .** box.

Learn by doing

LESSON 6 CLOUD STORAGE OF FILES

Comprehension

1 Read and create

1. You want to convince a family member to use cloud computing to store their personal files. Create a poster highlighting the benefits.

2. A family member gives you an example of a disadvantage of using cloud computing. Come up with counter evidence to reduce their concern.

Life Skills

2 Organize

Refer to your notes from Explore. Write an outline, or draw how you would organize your own personal files on a cloud storage platform.

Research

3 Search and write

Research a cloud storage provider, such as Google Drive, Microsoft OneDrive, or Dropbox. Write about three of the tools and features that are included.

1. ____________________
2. ____________________
3. ____________________

ICT and Me

4 Think and answer

How comfortable are you, or would you be, storing items on a cloud server? Explain. Compare it to how comfortable you are, or would be, storing the same items on your personal device.

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LESSON 7 CLOUD COMPUTING APPLICATIONS

Objectives

By the end of the lesson, I will be able to:	After the lesson, check the correct box: **I can . . .**
• Discuss examples of cloud computing applications.	☐ Very well ☐ OK ☐ Need more work
• Explain the advantages of cloud storage over traditional storage.	☐ Very well ☐ OK ☐ Need more work
• Identify how to upload files or folders to OneDrive.	☐ Very well ☐ OK ☐ Need more work

Engage

Cloud computing is storing, and accessing, data or programs through the internet. How has this affected your everyday life? Explain.

Learn

Microsoft 365™ and Google Workspace™ are the most popular software that deal with cloud computing applications. Both platforms include productivity apps and storage. Microsoft 365 offers a whole suite of productivity apps such as Microsoft Teams™, Word, Excel™, PowerPoint™, its email platform, Outlook™, as well as Microsoft 365 storage application OneDrive. In summary, this platform provides everything you need. When you select Microsoft Word, as shown in the photo, it opens up a new blank document that allows you to draft ideas, a story, or an assignment. Other applications like PowerPoint can also help you create a presentation and OneDrive can help you share work with your friends too.

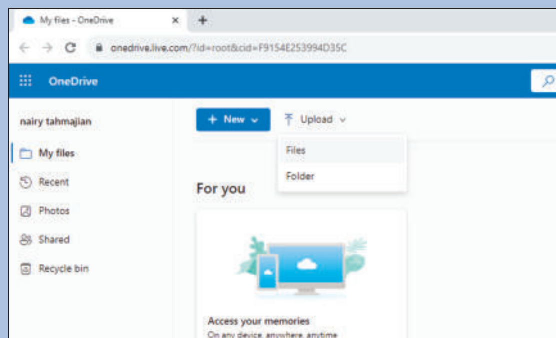


OneDrive

OneDrive allows you to store, share, and access files from any device. It's very user-friendly. You upload your files and then click on the Share option to share with others. You can decide what level of access each person you share with gets – whether it's for viewing purposes only, or editing.

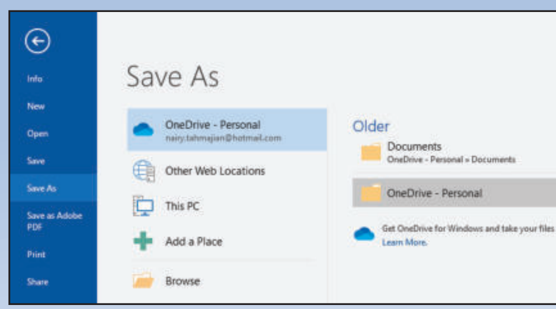
How to upload files or folders to OneDrive

- In Chrome, sign in the Microsoft Office. Select OneDrive.
- 'Select Upload > Files or Upload > Folder.
- Select the files or folder you want to upload.
- Select Open or Select Folder.



How to save a file to OneDrive

- Select File > Save a Copy > OneDrive – Personal/Company.
- Select Enter file name here and type a name.
- Select Save.
- You will then see the file in your OneDrive, the next time you open the Office app.



Explore

Discuss in a group how using cloud-powered computing platforms could help you collaborate with others.

Review

1. Provide and explain one feature of Microsoft 365.
2. What is OneDrive? What advantage does it have over traditional storage?

Self-assess

Go to the Objectives at the beginning of the lesson.
Check the correct **I can ...** box.

Learn by doing

LESSON 7 CLOUD COMPUTING APPLICATIONS

Comprehension

1 Read and answer

1. Explain the difference between OneDrive and traditional storage.

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2. How is OneDrive user-friendly?

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Critical Thinking

2 Read, think, and write

1. Do you feel collaboration using cloud applications can be just as personal as collaboration in person? Explain.

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2. Cloud computing has changed everyday life. Do you think these changes are all positive? Explain your opinion.

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3. Based on what you know about cloud computing applications, explain how you would use them in everyday life.

ICT and Me

3 Think and answer

What experience do you have with cloud applications? Provide examples of when you've used them. If you don't have any experience using them, which applications might you try using, now that you know more about them?

REVIEW THEME 2

Vocabulary

1 Write and compare

Write a sentence for each set of words or phrases to explain the connection between them. Then compare your sentences with a partner.

1. physical dangers of electronic games and psychological dangers of electronic games

2. cyber security and spoofing

3. cloud storage and traditional storage

Review Questions

2 Read and answer

1. List one important ICT technique that National Geographic Explorer Didi El- Behaedi uses to help her in her research.

2. Give one example of how to face the dangers of electronic games.

3. List two precautions you can take to prevent data theft.

4. How can you protect yourself from spoofing?

5. What is e-trading?

6. Describe a security feature provided by cloud computing.

7. List three ways you can use cloud applications to access and share information.

Critical Thinking

3 Think and answer

1. Explain how setting boundaries for electronic games is related to your overall well-being.

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2. How have cloud computing applications made everyday life easier?

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Essential Question

4 Think and complete

After studying this theme, I know that I can responsibly access and share data online because ____________________

____

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Activity

5 Research, create, and show

Create your own exhibition about a cloud application of your choice.

Find photographs, screenshots, or draw pictures that relate to it. Make labels and write captions for your diagrams, screenshots, and illustrations.
Include the following:

- the application you chose
- three important facts related to the application
- why it is important to you
- how you might use it now or in the future
- why others might be interested in using it

Invite your classmates to view your exhibition.

PROJECT TERM 1

1 Read the title of the project carefully. Think about how what you learned in Term 1, and how it will help you in your research and presentation.

Share information about an issue that is important to young Egyptians.
As a group, you'll research about one of the following topics:
- Designing a website about your school, using HTML programming language.
- Creating an idea or illustration of a robot to serve your colleagues, other individuals, or the community.
- Safe storage of files using one of the cloud computing applications.

2 Choose your group and a topic.

Who are you working with?

● ______________________ ● ______________________

Choose the topic that interests your group the most, either from the list in Activity 1 or your own ideas. Write and explain your choice.

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Remember: Listen to and respect everyone's opinion. If you have trouble coming to an agreement, ask your teacher for help.

3 Planning techniques

Explain each group member's strengths and how they will be used to contribute to this project.

____

____

What tools will you use to research your issue, ICT or otherwise?

____

How will you organize your information?

____

How do you plan to present your date to the class? Which ICT tools will you use e.g., PowerPoint, a web page, or a poster? ______________________
How will you use your mode of presentation effectively? Think about information, design, layout, and graphics?

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4 Research your issue

What sources will you use to gather your information?	How might you use cloud applications as you work on the project?
☐ Search engines ☐ EKB ☐ The school library Other: ____________	____________ ____________ ____________ ____________ ____________ ____________ ____________

5 Organizing information

How will you use what you learned in Term 1 to research, edit, organize, and present the information that you find?

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Remember: Take advantage of the accessories different browsers include, including help with citing sources.

6 Your plan

Write down your plan for doing the project. Plan the steps. Remember: Include evaluating and citing sources in your list of steps.

1

2

3

7 Your final product

Provide results of your research here. Don't forget to use citations and footnotes.

8 Presenting your work to the class

How will you present the work? What will you say? What will you avoid doing? How will you be persuasive?

NOTES

المواصفات الفنية:

مقاس الكتاب:	١٩ × ٢٧ سم
طبع المتن:	٤ ألوان
طبع الغلاف:	٤ ألوان
ورق المتن:	٧٠ جرام كوشيه
ورق الغلاف:	١٨٠ جرام كوشيه
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